## AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS

1.      (previously presented) A system that programs a memory cell comprising:

a memory cell to be programmed comprising;

a first electrode that forms a base for the memory cell;

a functional layer formed over the first electrode to facilitate charge migration in the memory cell, an impedance state(s) of the functional layer changes based on a migration of electrons or holes when subject to an external electric field or light radiation, the impedance state(s) indicative of more than two programming states of the memory cell;

a second electrode formed over the functional layer and operative with the first electrode to activate a memory portion in the memory cell, and

a control component that applies an external stimulus to the memory cell, to affect at least one of an electrical and optical property associated with the memory cell, the control component comprising a comparator that compares a value of the at least one of an electrical and optical property with a threshold value, to determine a program state of the memory cell.

2.      (previously presented) The system of claim 1, the control component comprising a generator.

3.      (cancelled)

4.      (original) The system of claim 1, wherein the external stimulus is a voltage.

5.      (previously presented) The system of claim 1, wherein the impedance of the memory cell represents four bits of information.

6.      (original) The system of claim 1, the functional layer is a selectively conductive media further comprising an organic light emitting material.

7.      (original) The system of claim 1, the functional layer comprises a passive layer, an active layer and a barrier layer.

8.      (original) The system of claim 1, the second electrode comprising a plurality of electrodes to facilitate decoupling of write and read circuits that program the memory cell.

9.      (currently amended) A method of programming a memory cell using the system of claim 1, comprising:

        providing a memory cell comprising a selectively conductive layer that is sandwiched between electrodes;

        applying an external stimulus to the memory cell to affect an impedance state of the memory cell and indicate one state of more than two impedance states of the memory cell; and

        comparing the impedance state with a predetermined threshold value.

10.     (original) The method of claim 9, wherein applying an external stimulus comprises applying a voltage to the memory cell.

11.     (previously presented) The method of claim 9, further comprising comparing an electric current passing through the memory cell with a predetermined threshold value.

12.     (previously presented) The method of claim 9, further comprising removing the external stimulus based on an outcome of the comparing act.

13.     (currently amended) A method of programming information in a memory cell using the system of claim 1, comprising:

        applying an electric field pulse that exceeds a threshold value to the memory cell, the memory cell comprising a selectively conductive layer that is sandwiched between electrodes; and

controlling at least one of an impedance of the cell, current flowing through the cell, and a time duration that current flows through the cell, to program the memory cell, to one of more than two operating states of the memory cell.

14.     (original) The method of claim 13 further comprising comparing a current flowing through the cell with a predetermined value.


15.     (original) The method of claim 14 further comprising removing the electric field pulse based on an outcome of comparing a current flowing through the cell with a predetermined value.


16.     (original) The method of claim 15 further comprising applying a further electric pulse to read information from the memory cell.


17.     (original) The method of claim 13 further comprising applying a reverse electric field pulse to erase programmed information.


18.-23. (cancelled)